

**1. (Amended)** A packet transfer apparatus for switching and transferring a cell signal among first and second nodes and a routing device, the nodes having each an interface for the cell signal, the routing device having an interface for the cell signal and determining an outgoing route for the cell signal according to destination data contained in the cell signal, the cell signal being made from a packet signal that contains the destination data, the packet transfer apparatus comprising:

- a switch for making a connection path among the nodes and routing device;
- a memory for caching the outgoing route data from the routing device; and
- a shortcut controller for forming a shortcut to transmit the cell signal directly from the first node to the second node when outgoing route data contained in an input cell signal from the first node is equal to outgoing route data cached in the memory, and otherwise caching outgoing route data for the input cell into the memory after the input cell signal has been routed to the second node by the router.

**5. (Amended)** A packet transfer apparatus for switching and transferring a cell signal among first and second nodes and a routing device, the nodes having each an interface for the cell signal, the routing device having an interface for the cell signal and determining an outgoing route for the cell signal according to destination data contained in the cell signal, the cell signal being made from a packet signal that contains the destination data, the packet transfer apparatus comprising:

- a switch for making a connection path among the nodes and routing device;
- a memory for caching source data for a an input cell signal from the second node as outgoing route data; and

- a shortcut controller for forming a shortcut to transmit a cell signal input at the first node directly from the first node to the second node when outgoing route data contained the cell signal input at the first node is equal to outgoing route data cached in

the memory, and for caching into the memory source data contained in the input cell signal from the second node as outgoing route data.

**9. (Amended)** A packet transfer apparatus for switching and transferring a frame signal among first and second nodes and a routing device, the nodes each having an interface for the frame signal, the routing device having an interface for the frame signal and determining an outgoing route for the frame signal according to destination data contained in the frame signal, the frame signal being made from a packet signal that contains the destination data, the packet transfer apparatus comprising:

a switch for making a connection path among the nodes and routing device;

a memory for caching outgoing route data from the routing device; and

a shortcut controller for forming a shortcut to transmit the frame signal directly from the first node to the second node when outgoing route data contained in an input frame signal from the first node is equal to outgoing route data cached into the memory, and otherwise caching outgoing route data for the input frame into the memory after the input frame has been routed to the second node by the router.

**12. (Amended)** A packet transfer apparatus for switching and transferring a frame signal among first and second nodes and a routing device, the nodes each having an interface for the frame signal, the routing device having an interface for the frame signal and determining an outgoing route for the frame signal according to destination data contained in the frame signal, the frame signal being made from a packet signal that contains the destination data, the packet transfer apparatus comprising:

a switch for making a connection path among the nodes and routing device;

a memory for caching source data for an input frame signal from the second node as outgoing route data; and